WEST Search History

Hide Items | Restore | Clear | Cancel

DATE: Saturday, September 17, 2005

Hide?	Set Name	Query	Hit Count
		DB=DWPI; PLUR=YES; OP=ADJ	
☐	L28	L27 and l26	62
☐	L27	toxin	7426
☐	L26	quinquestriatus or leiurus or scorpion	652
		DB=JPAB; PLUR=YES; OP=ADJ	
☐	L25	quinquestriatus or leiurus or scorpion	6
		DB=EPAB; PLUR=YES; OP=ADJ	
☐	L24	L23 and l22	9
☐	L23	toxin	1177
☐	L22	quinquestriatus or leiurus or scorpion	29
		DB=USOC; PLUR=YES; OP=ADJ	
☐	L21	L20 same l19	0
☐	L20	toxin	463
☐	L19	quinquestriatus or leiurus or scorpion	28
☐	L18	potassium or k+	105038
		DB=PGPB; PLUR=YES; OP=ADJ	
☐	L17	L15 and (potassium or k+)	109
☐	L15	(L14 or l12) same l13	171
☐	L14	scorpion	835
☐	L13	toxin	22638
☐	L12	quinquestriatus or leiurus	43
		DB=USPT; PLUR=YES; OP=ADJ	
☐	L11	l7 and l6 not l9	61
☐	L10	l7 and l3 not l8	33
☐	L9	l7 same l6	34
☐	L8	L7 same l3	3
☐	L7	potassium or k+	282322
☐	L6	L5 not l3	208
☐	L5	l4 same l2	258
☐	L4	scorpion	1172
☐	L3	l1 same L2	53
☐	L2	toxin	22671

☐	L1	quinquestriatus or leiurus	79

END OF SEARCH HISTORY

17sep05 08:17:25 User208600 Session D1698.1

SYSTEM:OS - DIALOG OneSearch
File 155:MEDLINE(R) 1951-2005/Sep 16 (c) format only 2005 Dialog
File 5:Biosis Previews(R) 1969-2005/Sep W2 (c) 2005 BIOSIS
File 357:Derwent Biotech Res. _1982-2005/Sep W3 (c) 2005 Thomson Derwent & ISI

Set Items Description
S1 768 QUINQUESTRIATUS
S2 231300 TOXIN
S3 336 S1 AND S2
S4 3963 CHARYBDOTOXIN
S5 62 S3 AND S4
S6 62 ID (sorted in duplicate order)
S7 1790727 HOMOLOG? OR ANALOG? OR FAMILY
S8 18 S6 AND S7
S9 18 ID (sorted in duplicate order)
S10 838 LEIURUS
S11 119 S10 NOT S1
S12 1 S11 AND S2 AND S4 AND S7
S13 2 S11 AND S2 AND S4
S14 526 (CYSTINE OR CYSTEINE)(W)KNOT
S15 0 S1 AND S14
S16 2 S4 AND S14
S17 7240 SCORPION
S18 81 S17 AND S2 AND S4 AND S7 NOT S8
S19 81 ID (sorted in duplicate order)

Ref Items Index-term
E1 1 AU=HERRMANN PHIL U
E2 6 AU=HERRMANN PIA
E3 850 *AU=HERRMANN R
E4 15 AU=HERRMANN R A
E5 4 AU=HERRMANN R B
E6 3 AU=HERRMANN R E
E7 1 AU=HERRMANN R F
E8 309 AU=HERRMANN R G
E9 5 AU=HERRMANN R J
E10 7 AU=HERRMANN R K
E11 39 AU=HERRMANN R L
E12 11 AU=HERRMANN R M
E13 4 AU=HERRMANN R O
E14 91 AU=HERRMANN R P
E15 5 AU=HERRMANN R R
E16 3 AU=HERRMANN R S
E17 6 AU=HERRMANN R W
E18 1 AU=HERRMANN R-M
E19 12 AU=HERRMANN RAFAEL
E20 2 AU=HERRMANN RAFI
E21 1 AU=HERRMANN RAINALD
E22 16 AU=HERRMANN RALF
E23 3 AU=HERRMANN RALPH
E24 4 AU=HERRMANN REBEKAH R

S20 1366 E3-E19
S21 1 AU='HERRMANN, R G'
S22 1367 S21 OR S20
S23 29 S17 AND S22
S24 29 ID (sorted in duplicate order)
S25 9 S1 AND S22
S26 9 ID (sorted in duplicate order)

Ref Items Index-term
E1 1 AU=PRESMANES MORALES S
E2 2 AU=PRESME N
E3 1 *AU=PRESNAIL J
E4 19 AU=PRESNAIL J K
E5 10 AU=PRESNAIL JAMES K
E6 1 AU=PRESNAIL JIM
E7 1 AU=PRESNAJDER P
E8 2 AU=PRESNAL B
E9 3 AU=PRESNAL B P
E10 1 AU=PRESNAL J K
E11 1 AU=PRESNALL C C
E12 2 AU=PRESNALL D

S27 30 E3-E5
S28 1 S1 AND S27
S29 3 S17 AND S27

Ref Items Index-term
E1 1 AU=LTTLEHALE STEVEN B
E2 69 AU=LU
E3 162 *AU=LU A
E4 6 AU=LU A C
E5 3 AU=LU A C H
E6 18 AU=LU A D
E7 7 AU=LU A G
E8 11 AU=LU A H
E9 1 AU=LU A H Y
E10 2 AU=LU A J
E11 57 AU=LU A L
E12 1 AU=LU A M
E13 1 AU=LU A M D
E14 1 AU=LU A N
E15 3 AU=LU A P
E16 3 AU=LU A Q
E17 3 AU=LU A S
E18 25 AU=LU A T
E19 1 AU=LU A U H
E20 1 AU=LU A W

S30 219 E3, E11

Ref Items Index-term
E1 6 AU=LU AIMING
E2 1 AU=LU AINI
E3 1 AU=LU AINIAN
E4 14 AU=LU AIPING
E5 8 AU=LU AIQIN
E6 2 AU=LU AIWU
E7 1 AU=LU AIYUN
E8 1 AU=LU AL
E9 1 AU=LU AL-LING
E10 1 AU=LU ALAN Q
E11 2 AU=LU ALAN QING
E12 1 AU=LU ALAN QUIN
E13 23 AU=LU ALBERT
E14 2 AU=LU ALBERT L
E15 1 AU=LU ALEX
E16 4 AU=LU ALICE
E17 1 AU=LU ALLAN T K
E18 2 AU=LU ALLEN
E19 6 AU=LU ALLEN P

S31 25 E13,E14
S32 244 S30 OR S31
S33 2 S1 AND S32
S34 4 S17 AND S32

Ref Items Index-term
E1 1 AU=WONG IVY HN
E2 1 AU=WONG IVY S L
E3 1352 *AU=WONG J
E4 25 AU=WONG J A
E5 2 AU=WONG J A L
E6 4 AU=WONG J A-L
E7 124 AU=WONG J B
E8 95 AU=WONG J C
E9 30 AU=WONG J C F
E10 9 AU=WONG J C H
E11 2 AU=WONG J C K
E12 5 AU=WONG J C L

S35 361 S3,AU='WONG J A'

Ref Items Index-term
E1 1 AU=WONG JAFFE
E2 3 AU=WONG JAIME A
E3 41 *AU=WONG JAMES
E4 1 AU=WONG JAMES B
E5 1 AU=WONG JAMES CHING
E6 6 AU=WONG JAMES F
E7 4 AU=WONG JAMES F H
E8 2 AU=WONG JAMES G
E9 1 AU=WONG JAMES K
E10 12 AU=WONG JAMES M
E11 1 AU=WONG JAMES MIN-LEONG
E12 14 AU=WONG JAMES R

S36 51 E3,E6-E7
S37 410 S35 OR S36
S38 339 S37 AND (S1 OR S17)

S39 338 S38 AND S2
S40 338 ID (sorted in duplicate order)
S41 3201080 DNA OR GENE OR PLASMID
S42 33 S39 AND S41
S43 33 ID (sorted in duplicate order)

Ref	Items	Index-term
E1	1	AU=LEE IW
E2	1	AU=LEE IY
E3	4131	*AU=LEE J
E4	1	AU=LEE J -B
E5	1	AU=LEE J -J
E6	1	AU=LEE J -L
E7	1	AU=LEE J -S
E8	1	AU=LEE J -W
E9	1	AU=LEE J -Y
E10	674	AU=LEE J A
E11	7	AU=LEE J A C
E12	39	AU=LEE J A H

S44 4131 AU='LEE J'

E30	1	AU=LEE J K-Y
E31	77	AU=LEE J L
E32	4	AU=LEE J L C
E33	2	AU=LEE J L JR
E34	1	AU=LEE J L-C
E35	1005	AU=LEE J M
E36	4	AU=LEE J M F
E37	7	AU=LEE J M H
E38	2	AU=LEE J M J
E39	1	AU=LEE J M JEANETTE
E40	3	AU=LEE J M JR
E41	1	AU=LEE J M L
E42	1	AU=LEE J M TAMBLYN
E43	2	AU=LEE J M-F
E44	2	AU=LEE J MARSHALL
E45	1	AU=LEE J MARTIN
E46	1	AU=LEE J MI
E47	26	AU=LEE J MICHAEL
E48	162	AU=LEE J N

S45 1021 E35-E38,E41,E43

Ref	Items	Index-term
E1	15	AU=LEE JIAHN-SHING
E2	2	AU=LEE JIAHN-TE
E3	0	*AU=LEE JIAN
E4	1	AU=LEE JIAN TAO
E5	1	AU=LEE JIAN-CHENG
E6	1	AU=LEE JIAN-FU
E7	13	AU=LEE JIAN-MING
E8	4	AU=LEE JIAN-WEI
E9	1	AU=LEE JIANN GWU
E10	4	AU=LEE JIANN-DER
E11	5	AU=LEE JIANN-FENG
E12	1	AU=LEE JIANN-GWU
E13	1	AU=LEE JIANN-HSIUNG
E14	3	AU=LEE JIANN-SHU

S46 13 AU='LEE JIAN-MING'
S47 1034 S46 OR S45
S48 3 S47 AND (S1 or S17)

6/6/1 (Item 1 from file: 5) 0007115178 BIOSIS NO.: 199089033069
ANALYSIS OF THE BLOCKING ACTIVITY OF CHARYBDOTOXIN HOMOLOGS AND IODINATED DERIVATIVES AGAINST CALCIUM-ACTIVATED POTASSIUM CHANNELS 1989

6/6/2 (Item 2 from file: 155) 08751880 PMID: 2477548
Analysis of the blocking activity of charybdotoxin homologs and iodinated derivatives against Ca2+-activated K+ channels. Aug 1989

6/6/3 (Item 3 from file: 5) 0014612756 BIOSIS NO.: 200300581475
Atypical relaxation by scorpion venom in the lamb urethral smooth muscle involves both NO-dependent and -independent responses. 2003

6/6/4 (Item 4 from file: 5) 0010224284 BIOSIS NO.: 199698692117
Characterization of Ca-2+-activated 86Rb+ fluxes in rat C6 glioma cells: A system for identifying novel IK-ca-channel toxins 1996

6/6/5 (Item 5 from file: 155) 11509017 PMID: 8821537
Characterization of Ca(2+)-activated 86Rb+ fluxes in rat C6 glioma cells: a system for identifying novel IKCa-channel toxins. Feb 1996

6/6/6 (Item 6 from file: 155) 08675595 PMID: 2473920
Charybdotoxin blocks both Ca-activated K channels and Ca-independent voltage-gated K channels in rat brain synaptosomes. Jul 3 1989

6/6/7 (Item 7 from file: 155) 08710107 PMID: 2475579
Charybdotoxin blocks voltage-gated K+ channels in human and murine T lymphocytes. Jun 1989

6/6/8 (Item 8 from file: 5) 0006742983 BIOSIS NO.: 198988058098
CHARYBDOTOXIN BLOCKS VOLTAGE-GATED POTASSIUM CHANNELS IN HUMAN AND MURINE T LYMPHOCYTES 1989

6/6/9 (Item 9 from file: 155) 11058434 PMID: 7543240
Charybdotoxin and its effects on potassium channels. Jul 1995

6/6/10 (Item 10 from file: 5) 0009978314 BIOSIS NO.: 199598446147
Charybdotoxin and its effects on potassium channels 1995

6/6/11 (Item 11 from file: 155) 08859199 PMID: 2482078
Charybdotoxin is a new member of the K+ channel toxin family that includes dendrotoxin I and mast cell degranulating peptide. Dec 12 1989

6/6/12 (Item 12 from file: 5) 0007133033 BIOSIS NO.: 199089050924
CHARYBDOTOXIN IS A NEW MEMBER OF THE POTASSIUM CHANNEL TOXIN FAMILY THAT INCLUDES DENDROTOXIN I AND MAST CELL DEGRANULATING PEPTIDE 1989

6/6/13 (Item 13 from file: 5) 0006941512 BIOSIS NO.: 199038119403
CHARYBDOTOXIN IS A NEW MEMBER OF THE TOXIN FAMILY THAT INCLUDES DENDROTOXIN I AND MCD AND BLOCKS DENDROTOXIN-SENSITIVE VOLTAGE ACTIVATED POTASSIUM CHANNELS1990

6/6/14 (Item 14 from file: 155) 07976191 PMID: 2442295
Charybdotoxin selectively blocks small Ca-activated K channels in Aplysia neurons. Jul 1987

6/6/15 (Item 15 from file: 5) 0005734218 BIOSIS NO.: 198784088367
CHARYBDOTOXIN SELECTIVELY BLOCKS SMALL CALCIUM-ACTIVATED POTASSIUM CHANNELS IN APLYSIA NEURONS 1987

6/6/16 (Item 16 from file: 5) 0007723137 BIOSIS NO.: 199191106028
CHARYBDOTOXIN -SENSITIVE CALCIUM ACTIVATED POTASSIUM CHANNEL IS NOT INVOLVED IN GLUCOSE-INDUCED ELECTRICAL ACTIVITY IN PANCREATIC BETA-CELLS 1991

6/6/17 (Item 17 from file: 155) 09417323 PMID: 1710672
Charybdotoxin -sensitive K(Ca) channel is not involved in glucose-induced electrical activity in pancreatic beta-cells. Jan 1991

6/6/18 (Item 18 from file: 5) 0011349339 BIOSIS NO.: 199800143586
Consequence of the removal of evolutionary conserved disulfide bridges on the structure and function of charybdotoxin and evidence that particular cysteine spacing govern specific disulfide bond formation 1998

6/6/19 (Item 19 from file: 5) 0007735556 BIOSIS NO.: 199191118447
DESIGN SYNTHESIS AND FUNCTIONAL EXPRESSION OF A GENE FOR CHARYBDOTOXIN A PEPTIDE BLOCKER OF POTASSIUM ION CHANNELS 1991

6/6/20 (Item 20 from file: 155) 08571405 PMID: 2468961
Effect of some potassium channel blockers on contractile responses of the rabbit aorta. Feb 1989

6/6/21 (Item 21 from file: 5) 0006637771 BIOSIS NO.: 198987085662
EFFECT OF SOME POTASSIUM CHANNEL BLOCKERS ON CONTRACTILE RESPONSES OF THE RABBIT AORTA 1989

6/6/22 (Item 22 from file: 155) 08812992 PMID: 2531622
Effects of potassium channel toxins from Leiurus quinquestriatus hebraeus venom on responses to cromakalim in rabbit blood vessels. Nov 1989

6/6/23 (Item 23 from file: 5) 0007102492 BIOSIS NO.: 199089020383
EFFECTS OF POTASSIUM CHANNEL TOXINS FROM LEIURUS- QUINQUESTRIATUS -HEBRAEUS VENOM ON RESPONSES TO CROMAKALIM IN RABBIT BLOOD VESSELS 1989

6/6/24 (Item 24 from file: 155) 10239832 PMID: 7687466
Influence of protein surface charge on the bimolecular kinetics of a potassium channel peptide inhibitor. Jul 13 1993

6/6/25 (Item 25 from file: 5) 0009404393 BIOSIS NO.: 199497425678
Evidence in support of a role for Ca-2+-activated K+ channels in the hamster sperm acrosome reaction 1994

6/6/26 (Item 26 from file: 155) 10670679 PMID: 7520055
Evidence in support of a role for Ca(2+)-activated K+ channels in the hamster sperm acrosome reaction. Aug 1 1994

6/6/27 (Item 27 from file: 5) 0014215910 BIOSIS NO.: 200300174629
Functional analysis of an archaebacterial voltage-dependent K+ channel. 2003

6/6/28 (Item 28 from file: 5) 0006267342 BIOSIS NO.: 198886107263
PHARMACOLOGY OF POTASSIUM CHANNELS IN THE PLASMALEMMA OF THE GREEN ALGA CHARA-CORALLINA 1988

6/6/29 (Item 29 from file: 155) 07773735 PMID: 2433153
Identification of two toxins from scorpion (Leiurus quinquestriatus)venom which block distinct classes of calcium-activated potassium channel. Dec 1 1986

6/6/30 (Item 30 from file: 155) 08722670 PMID: 2476127
Interactions between dendrotoxin, a blocker of voltage-dependent potassium channels, and charybdotoxin , a blocker of calcium-activated potassium channels, at binding sites on neuronal membranes. Aug 30 1989

6/6/31 (Item 31 from file: 5) 0006799478 BIOSIS NO.: 198988114593
INTERACTION BETWEEN DENDROTOXIN A BLOCKER OF VOLTAGE-DEPENDENT POTASSIUM CHANNELS AND CHARYBDOTOXIN A BLOCKER OF CALCIUM-ACTIVATED POTASSIUM CHANNELS AT BINDING SITES ON NEURONAL MEMBRANES 1989

6/6/32 (Item 32 from file: 5) 0014988561 BIOSIS NO.: 200400359350
Kbot1, a three disulfide bridges toxin from Buthus occitanus tunetanus venom highly active on both SK and Kv channels 2004

6/6/33 (Item 33 from file: 5) 0006395808 BIOSIS NO.: 198936104699
LEIURUS- QUINQUESTRIATUS VENOM PEPTIDES THAT BLOCK BRAIN VOLTAGE-GATED AND CALCIUM-ACTIVATED POTASSIUM CHANNELS ALSO INHIBIT DENDROTOXIN BINDING TO SYNAPTIC MEMBRANES 1989

6/6/34 (Item 34 from file: 155) 10823421 PMID: 7819188
NMR sequential assignments and solution structure of chlorotoxin, a small scorpion toxin that blocks chloride channels. Jan 10 1995

6/6/35 (Item 35 from file: 5) 0009648827 BIOSIS NO.: 199598116660
NMR Sequential Assignments and Solution Structure of Chlorotoxin, a Small Scorpion Toxin That Blocks Chloride Channels 1995

6/6/36 (Item 36 from file: 155) 10895806 PMID: 7533951
Neuromuscular effects of some potassium channel blocking toxins from the venom of the scorpion Leiurus quinquestriatus hebreus. Nov 1994

6/6/37 (Item 37 from file: 5) 0009575215 BIOSIS NO.: 199598043048
Neuromuscular effects of some potassium channel blocking toxins from the venom of the scorpion Leiurus quinquestriatus hebreus 1994

6/6/38 (Item 38 from file: 155) 09990086 PMID: 1280139
Noxiustoxin and leiurutoxin III, two homologous peptide toxins with binding properties to synaptosomal membrane K+ channels. Sep 1992

6/6/39 (Item 39 from file: 5) 0008709107 BIOSIS NO.: 199395011373
Noxiustoxin and leiurutoxin III, two homologous peptide toxins with binding properties to synaptosomal membrane potassium channels 1992

6/6/40 (Item 40 from file: 155) 06794986 PMID: 6197125
A study on the membrane depolarization of skeletal muscles caused by a scorpion toxin , sea anemone toxin II and crotamine and the interaction between toxins. Jul 1983

6/6/41 (Item 41 from file: 5) 0007309715 BIOSIS NO.: 199090094194
POLARIZED RUBIDIUM-86 EFFLUXES IN PRIMARY CULTURES OF RABBIT KIDNEY PROXIMAL CELLS ROLE OF CALCIUM AND HYPOTONICITY 1990

6/6/42 (Item 42 from file: 155) 09066202 PMID: 2165808
Polarized 86Rb+ effluxes in primary cultures of rabbit kidney proximal cells: role of calcium and hypotonicity. Jul 9 1990

6/6/43 (Item 43 from file: 5) 0005550519 BIOSIS NO.: 198783029410
PURIFICATION OF CHARYBDOTOXIN A SPECIFIC INHIBITOR OF THE HIGH-CONDUCTANCE CALCIUM-ACTIVATED POTASSIUM CHANNEL 1986

6/6/44 (Item 44 from file: 155) 07702384 PMID: 2429958
Purification of charybdotoxin , a specific inhibitor of the high-conductance Ca2+-activated K+ channel. Nov 5 1986

6/6/45 (Item 45 from file: 155) 08257702 PMID: 2453055
Purification, sequence, and model structure of charybdotoxin , a potent selective inhibitor of calcium-activated potassium channels. May 1988

6/6/46 (Item 46 from file: 5) 0006204047 BIOSIS NO.: 198886043968
PURIFICATION SEQUENCE AND MODEL STRUCTURE OF CHARYBDOTOXIN A POTENT SELECTIVE INHIBITOR OF CALCIUM-ACTIVATED POTASSIUM CHANNELS 1988

6/6/47 (Item 47 from file: 5) 0009196865 BIOSIS NO.: 199497218150
Solution structure of a core peptide derived from scyllatoxin 1994

6/6/48 (Item 48 from file: 155) 13306597 PMID: 10081954
Solution structure of potassium channel-inhibiting scorpion toxin Lq2. Mar 1 1999

6/6/49 (Item 49 from file: 5) 0008984542 BIOSIS NO.: 199497005827
Synthesis of charybdotoxin and of two N-terminal truncated analogues: Structural and functional characterization 1993

6/6/50 (Item 50 from file: 5) 0007639797 BIOSIS NO.: 199191022688
SYNTHESIS AND STRUCTURAL CHARACTERIZATION OF CHARYBDOTOXIN A POTENT PEPTIDYL INHIBITOR OF THE HIGH CONDUCTANCE CALCIUM ION ACTIVATED POTASSIUM ION CHANNEL 1990

6/6/51 (Item 51 from file: 155) 09151531 PMID: 1699936
Synthesis and structural characterization of charybdotoxin , a potent peptidyl inhibitor of the high conductance Ca2(+)-activated K+ channel. Nov 5 1990

6/6/52 (Item 52 from file: 5) 0010206293 BIOSIS NO.: 199698674126
Synthesis and structural characterisation of analogues of the potassium channel blocker charybdotoxin 1996

6/6/53 (Item 53 from file: 5) 0009025088 BIOSIS NO.: 199497046373
Toxin pharmacology of the large-conductance Ca-2+-activated K+ channel in the apical membrane of rabbit proximal convoluted tubule in primary culture 1993

6/6/54 (Item 54 from file: 155) 10398153 PMID: 7505914
Toxin pharmacology of the large-conductance Ca(2+)-activated K+ channel in the apical membrane of rabbit proximal convoluted tubule in primary culture. Oct 1993

6/6/55 (Item 55 from file: 155) 09744035 PMID: 1373656
Toxin pharmacology of the ATP-induced hyperpolarization in Madin-Darby canine kidney cells. Mar 23 1992

6/6/56 (Item 56 from file: 5) 0008332816 BIOSIS NO.: 199294034657
TOXIN PHARMACOLOGY OF ATP-INDUCED HYPERPOLARIZATION IN MADIN-DARBY CANINE KIDNEY CELLS 1992

6/6/57 (Item 57 from file: 5) 0006381782 BIOSIS NO.: 198936090673
TOXINS IN THE CHARACTERIZATION OF POTASSIUM CHANNELS 1989

6/6/58 (Item 58 from file: 155) 10066261 PMID: 7678959
Toxin sensitivity of the calcium-dependent rubidium efflux in Madin-Darby canine kidney cells. Jan 29 1993

6/6/59 (Item 59 from file: 5) 0008801098 BIOSIS NO.: 199395103364
Toxin sensitivity of the calcium-dependent rubidium efflux in Madin-Darby canine kidney cells 1993

6/6/60 (Item 60 from file: 155) 08833309 PMID: 2600838
A voltage-dependent outward current with fast kinetics in single smooth muscle cells isolated from rabbit portal vein. May 1989

6/6/61 (Item 61 from file: 5) 0006708256 BIOSIS NO.: 198988023371
A VOLTAGE-DEPENDENT OUTWARD CURRENT WITH FAST KINETICS IN SINGLE SMOOTH MUSCLE CELLS ISOLATED FROM RABBIT PORTAL VEIN 1989

6/6/62 (Item 62 from file: 5) 0007742476 BIOSIS NO.: 199191125367
THREE-DIMENSIONAL STRUCTURE OF NATURAL CHARYBDOTOXIN IN AQUEOUS SOLUTION BY PROTON NMR CHARYBDOTOXIN POSSESSES A STRUCTURAL MOTIF FOUND IN OTHER SCORPION TOXINS 1991

6/7/2 (Item 2 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
08751880 PMID: 2477548
Analysis of the blocking activity of charybdotoxin homologs and iodinated derivatives against Ca2+-activated K+ channels.
Lucchesi K; Ravindran A; Young H; Moczydlowski E
Department of Pharmacology, Yale University School of Medicine, New Haven, Connecticut 06510.
Journal of membrane biology (UNITED STATES) Aug 1989, 109 (3) p269-81, ISSN 0022-2631 Journal Code: 0211301 Contract/Grant No.: AR38796; AR; NIAMS; HL38156; HL; NHLBI Publishing Model Print
Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: MEDLINE; Completed
Two charybdotoxin peptides were purified from venom of the Israeli scorpion, Leiurus quinquestriatus hebraeus. Microsequencing of the most abundant toxin , ChTX-Lq1, revealed identity with the 37-residue peptide previously sequenced by Gimenez-Gallego et al. [Gimenez-Gallego, G., et al., Proc. Natl. Acad. Sci. USA 85:3329-3333 (1988)]. Sequence data on the minor peptide, ChTX-Lq2, showed substantial homology to ChTX-Lq1 with differences observed at eight positions. These two charybdotoxin sequences, along with that of noxiustoxin, define a distinct family of scorpion peptide toxins with activity against K+ channels. Both charybdotoxin homologs inhibited Ca2+-dependent K+ efflux from human erythrocytes with similar potency, K0.5 approximately 40 nM..In planar bilayer assays of single K(Ca) channels from rat muscle, ChTX-Lq1 and ChTX-Lq2 blocked with intrinsic Kd's of 1.3 and 43 nM, respectively, in the presence of 50 mM external KCl. A new application of dwell-time histogram analysis of single-channel blocking events was used to characterize the kinetic homogeneity of toxin samples and the blocking kinetics of ChTX derivatives. The lower blocking affinity of ChTX-Lq2

was the combined result of a faster dissociation rate and a slower association rate as compared to ChTX-Lq1. The blocking activity of two mono-iodinated derivatives of ChTX-Lq1 was also analyzed. Blocked dwell-time histograms of the iodinated peptides were characterized by predominately brief (0.2-2 sec) blocking events in comparison to the native toxin (20 sec). Histogram analysis revealed that mono-iodination of ChTX-Lq1 impairs blocking activity by adverse effects on both dissociation and association rate constants. Frequency density histograms of single channel blocking events provide a sensitive assay of toxin purity suitable for quantitating structure-activity relationships of charybdotoxin derivatives.

Record Date Created: 19891101 Record Date Completed: 19891101

6/7/6 (Item 6 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
08675595 PMID: 2473920

Charybdotoxin blocks both Ca-activated K channels and Ca-independent voltage-gated K channels in rat brain synaptosomes.

Schneider M J; Rogowski R S; Krueger B K; Blaustein M P

Department of Physiology, University of Maryland School of Medicine, Baltimore 21201.

FEBS letters (NETHERLANDS) Jul 3 1989, 250 (2) p433-6, ISSN 0014-5793 Journal Code: 0155157

Contract/Grant No.: NS-16106; NS; NINDS; NS-16285; NS; NINDS; NS-20106; NS; NINDS Publishing Model Print

Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM Record type: MEDLINE; Completed

Charybdotoxin (ChTX), a 4.3 kDa polypeptide toxin from the venom of the scorpion Leiurus quinquestriatus , blocks both a Ca-activated K channel (IC50 approximately 15 nM) and a Ca-independent voltage-gated K channel (IC50 approximately 40 nM) in rat brain synaptosomes. These results indicate that in this preparation ChTX is not specific for the Ca-activated K channel and suggest that there may be structural homology among the toxin -binding sites on various types of K channels.

Record Date Created: 19890907 Record Date Completed: 19890907

6/7/9 (Item 9 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
11058434 PMID: 7543240

Charybdotoxin and its effects on potassium channels.

Garcia M L; Knaus H G; Munujos P; Slaughter R S; Kaczorowski G J

Department of Membrane Biochemistry and Biophysics, Merck Research Laboratories, Rahway, New Jersey 07065, USA.

American journal of physiology (UNITED STATES) Jul 1995, 269 (1 Pt 1) pC1-10, ISSN 0002-9513 Journal Code: 0370511 Publishing Model Print Document type: Journal Article; Review; Review, Tutorial Languages: ENGLISH

Main Citation Owner: NLM Record type: MEDLINE; Completed

Over the last few years, a considerable amount of information has been obtained regarding K+ channels. Different areas of research have contributed to knowledge in this field. Charybdotoxin (ChTX), a 37-amino acid peptide isolated from venom of the scorpion Leiurus quinquestriatus var. hebraeus, represents a remarkable tool for studying K+ channels. With its use, it has been possible to purify the high-conductance Ca(2+)-activated K+ (maxi-K) channel to homogeneity and determine the subunit composition of this channel. This has led to the discovery of an auxiliary beta-subunit that, when coexpressed with the pore-forming subunit, mSlo, alters the biophysical and pharmacological properties of this latter subunit. With the feasibility of producing large amounts of ChTX by recombinant techniques and the knowledge of the three-dimensional structure of the peptide, it has been possible to carry out site-directed mutagenesis studies and obtain a picture of the interaction surface of the toxin with two channels, maxi-K and Shaker, and to derive a picture of the complementary surface of the receptor in these two channels. Finally, ChTX, and the more selective K+ channel toxins that were subsequently discovered, have provided us with unique tools not only to determine the functional role that K+ channels play in target tissues but also to develop the molecular pharmacology of these channels. (76 Refs.)

Record Date Created: 19950901 Record Date Completed: 19950901

6/7/11 (Item 11 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
08859199 PMID: 2482078

Charybdotoxin is a new member of the K+ channel toxin family that includes dendrotoxin I and mast cell degranulating peptide.

Schweitz H; Bidard J N; Maes P; Lazdunski M

Centre de Biochimie, Centre National de la Recherche Scientifique, Universite de Nice, France.

Biochemistry (UNITED STATES) Dec 12 1989, 28 (25) p9708-14, ISSN 0006-2960 Journal Code: 0370623

Publishing Model Print Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM

Record type: MEDLINE; Completed

A polypeptide was identified in the venom of the scorpion Leiurus quinquestriatus hebraeus by its potency to inhibit the high-affinity binding of the radiolabeled snake venom toxin dendrotoxin I (125I-DTX1) to its receptor site. It has been purified, and its properties investigated by different techniques were found to be similar to those of MCD and DTXI, two polypeptide toxins active on a voltage-dependent K+ channel. However, its amino acid sequence was determined, and it was shown that this toxin is in fact charybdotoxin (ChTX), a toxin classically used as a specific tool to block one class of Ca2+-activated K+ channels. ChTX, DTXI, and MCD are potent convulsants and are highly toxic when injected intracerebroventricularly in mice. Their toxicities correlate well with their affinities for their receptors in rat brain. These three structurally different toxins release [3H]GABA from preloaded synaptosomes, the efficiency order being DTXI greater than ChTX greater than MCD. Both binding and cross-linking experiments of ChTX to rat brain membranes and to the purified MCD/DTXI binding protein have shown that the alpha-subunit (Mr = 76K-78K) of the MCD/DTXI-sensitive K+ channel protein also contains the ChTX binding sites. Binding sites for DTXI, MCD, and ChTX are in negative allosteric interaction. Our results show that charybdotoxin belongs to the family of toxins which already includes the dendrotoxins and MCD, which are blockers of voltage-sensitive K+ channels. ChTX is clearly not selective for Ca2+-activated K+ channel.

Record Date Created: 19900305 Record Date Completed: 19900305

6/7/18 (Item 18 from file: 5) DIALOG(R)File 5:Biosis Previews(R) (c) 2005 BIOSIS. All rts. reserv.
0011349339 BIOSIS NO.: 199800143586

Consequence of the removal of evolutionary conserved disulfide bridges on the structure and function of charybdotoxin and evidence that particular cysteine spacing govern specific disulfide bond formation

AUTHOR: Drakopoulou Eugenia; Vizzanova Jean; Neyton Jacques; Aniort Vincent ; Bouet Franciose; Virelizier Henri; Menez Andre; Vita Claudio (Reprint)

AUTHOR ADDRESS: CEA, Dep. Ingeniere Etudes Proteines, Serv. Phys. Exp. Analyse, Saclay, 91190 Gif-sur-Yvette, France**France

JOURNAL: Biochemistry 37 (5): p1292-1301 Feb. 3, 1998 1998 MEDIUM: print ISSN: 0006-2960 DOCUMENT TYPE: Article RECORD TYPE: AbstractLANGUAGE: English

ABSTRACT: Scorpion toxins are miniglobular proteins containing a common structural motif formed by an alpha-helix on one face, an antiparallel beta-sheet on the opposite face, and three disulfide bonds making up most of its internal volume. We have investigated the role of these evolutionary conserved bonds by replacing each couple of bridged cysteine residues of the scorpion charybdotoxin by a pair of nonbridging L-alpha-aminobutyric acid (Aba) residues. Three analogues were obtained by solid-phase synthesis, Chab I, Chab II, and Chab III, containing the Aba residues in positions 7 and 28, 13 and 33, 17 and 35, respectively. Circular dichroism analysis showed that the purified Chab II acquired a conformation similar to that of charybdotoxin , while the Chab I and Chab III possess decreased nativelike characteristics. All analogues block single high-conductance Ca2+-activated K+ channels from rat skeletal muscle inserted into planar lipid bilayers, but with different potencies. Chab II is the most active analogue (KD = 8.0 X 10-8 M), with a 9-fold lower affinity as compared to native charybdotoxin . Chab I and Chab III have, respectively, 180- and 580-fold lower affinity. Therefore, the removal of evolutionary conserved disulfide bridges does not prevent the toxin to adopt a functional and presumably nativelike structure. However, removal of one disulfide bond affects the yields of formation of correct pairing between the remaining cysteine residues, and only Chab I preserves the ability to form the native disulfide pairings with high efficiency. This is the only analogue to preserve particular spacings of three and one residue between the cysteines, which have been described to thermodynamically disfavor disulfide bond formation between the cysteines (Zhang, R., and Snyder, G. H. (1989) J. Biol. Chem. 264, 18472-18479). Therefore, we conclude that the position of the cysteine residues in the sequence of charybdotoxin , by disfavoring specific pairings and favoring others, may govern selective formation of specific disulfide bonds, thus, explaining the efficient folding properties of Chab I and of native charybdotoxin . The structural properties of the Chab analogues and the discovered role of the cysteine spacings have interesting implications in protein design and engineering.

6/7/19 (Item 19 from file: 5) DIALOG(R)File 5:Biosis Previews(R) (c) 2005 BIOSIS. All rts. reserv.
0007735556 BIOSIS NO.: 199191118447

DESIGN SYNTHESIS AND FUNCTIONAL EXPRESSION OF A GENE FOR CHARYBDOTOXIN A PEPTIDE BLOCKER OF POTASSIUM ION CHANNELS

AUTHOR: PARK C-S (Reprint); HAUSDORFF S F; MILLER C

AUTHOR ADDRESS: HOWARD HUGHES MED INST GRADUATE DEP BIOCHEM, BRANDEIS UNIV, WALTHAM, MASS 02254, USA**USA

JOURNAL: Proceedings of the National Academy of Sciences of the United States of America 88 (6): p2046-2050 1991 ISSN: 0027-8424 DOCUMENT TYPE: Article RECORD TYPE: Abstract LANGUAGE: ENGLISH

ABSTRACT: A gene encoding charybdotoxin (CTX), a K+ channel blocker from scorpion venom, was designed, synthesized, and expressed as a cleavable fusion protein in Escherichia coli. A sequence-specific protease, factor Xa, was used to cleave the fusion protein and thus release the toxin peptide. The recombinant toxin was purfied, oxidized to form disulfide bonds, and treated to form N-terminal pyroglutamate. Recombinant CTX is identical to the native venom CTX with respect to high-performance liquid chromatography mobility, amino acid composition, and N-terminal modification. With single Ca2+-activated K+ channels as an assay system, recombinant CTX shows blocking and dissociation kinetics identical to the native venom toxin . The synthetic gene and high-level expression of functionally active CTX make it possible to study the fundamental mechanism of the toxin -ion channel interaction.

6/7/22 (Item 22 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
08812992 PMID: 2531622

Effects of potassium channel toxins from Leiurus quinquestriatus hebraeus venom on responses to cromakalim in rabbit blood vessels.

Strong P N; Weir S W; Beech D J; Hiestand P; Kocher H P

Jerry Lewis Muscle Research Centre, Department of Paediatrics and Neonatal Medicine, Royal Postgraduate Medical School, London.
British journal of pharmacology (ENGLAND) Nov 1989, 98 (3) p817-26, ISSN 0007-1188 Journal Code: 7502536
Publishing Model Print Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM
Record type: MEDLINE; Completed
1. The effects of fractionated Leiurus quinquestriatus hebraeus venom on cromakalim-induced 86Rb+ efflux in rabbit aortic smooth muscle were examined. 2. Crude venom (0.1-30 micrograms ml-1) produced a concentration-dependent decrease of 1 microM cromakalim-induced 86Rb+ response. The maximum blocking activity attainable was approximately 60%. 3. Fractionation of crude venom by gel permeation chromatography and subsequent chromatography on a cation ion-exchange column, produced two fractions (X and XI), active in the 86Rb+ blocking assay. 4. Fraction XII contained charybdotoxin (approximately 85% pure). After a final high performance liquid chromatography (h.p.l.c.) purification step, the purified toxin failed to inhibit the cromakalim-stimulated 86Rb+ efflux although it was a potent inhibitor of A23187-induced K+ flux in human erythrocytes and the large conductance calcium-activated potassium channel in rabbit portal vein smooth muscle. 5. Subsequent purification of fraction X by h.p.l.c. yielded a minor peak which contained 86Rb+ blocking activity. This subfraction was also capable of inhibiting apamin-sensitive, angiotensin II-stimulated K+ flux in guinea-pig hepatocytes. 6. It is concluded that the potassium channel opened by cromakalim in rabbit aortic smooth muscle is not blocked by charybdotoxin but by another distinct toxin in the venom of Leiurus quinquestriatus hebraeus.
Record Date Created: 19900125 Record Date Completed: 19900125

6/7/29 (Item 29 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
07773735 PMID: 2433153
Identification of two toxins from scorpion (Leiurus quinquestriatus) venom which block distinct classes of calcium-activated potassium channel.
Castle N A; Strong P N
FEBS letters (NETHERLANDS) Dec 1 1986, 209 (1) p117-21, ISSN 0014-5793 Journal Code: 0155157
Publishing Model Print Document type: Journal Article Languages: ENGLISH Main Citation Owner: NLM
Record type: MEDLINE; Completed
Two polypeptide toxins from scorpion (Leiurus quinquestriatus) venom which block distinct classes of calcium-activated potassium channels have been identified and partially purified. One toxin , at 50-100 ng/ml, blocks apamin-sensitive potassium fluxes in hepatocytes and inhibits [125I]monoiodoapamin binding. The other, more basic, toxin blocks apamin-insensitive potassium fluxes in erythrocytes at 200 ng/ml and, to our knowledge, is the first toxin shown to block the erythrocyte calcium-activated potassium channel with high affinity. The possible co-identity of this latter toxin with charybdotoxin is discussed.
Record Date Created: 19870220 Record Date Completed: 19870220

6/7/33 (Item 33 from file: 5) DIALOG(R)File 5:Biosis Previews(R) (c) 2005 BIOSIS. All rts. reserv.
0006395808 BIOSIS NO.: 198936104699
LEIURUS- QUINQUESTRIATUS VENOM PEPTIDES THAT BLOCK BRAIN VOLTAGE-GATED AND CALCIUM-ACTIVATED POTASSIUM CHANNELS ALSO INHIBIT DENDROTOXIN BINDING TO SYNAPTIC MEMBRANES
AUTHOR: SORENSEN R G (Reprint); SCHNEIDER M J; BLAUSTEIN M P
AUTHOR ADDRESS: MED DEP, DIV ENVIRON MED AND TOXICOL, JEFFERSON MED COLL, PHILADELPHIA, PA 19107, USA**USA
JOURNAL: Biophysical Journal 55 (2 PART 2): p550A 1989 CONFERENCE/MEETING: THIRTY-THIRD ANNUAL MEETING OF THE BIOPHYSICAL SOCIETY, CINCINNATI, OHIO, USA, FEBRUARY 12-16, 1989. BIOPHYS J. ISSN: 0006-3495 DOCUMENT TYPE: Meeting RECORD TYPE: Citation LANGUAGE: ENGLISH

6/7/36 (Item 36 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
10895806 PMID: 7533951
Neuromuscular effects of some potassium channel blocking toxins from the venom of the scorpion Leiurus quinquestriatus hebreus.
Marshall D L; Vatanpour H; Harvey A L; Boyot P; Pinkasfeld S; Doljansky Y ; Bouet F; Menez A
Department of Physiology and Pharmacology, University of Strathclyde, Glasgow, U.K.
Toxicon - official journal of the International Society on Toxinology (ENGLAND) Nov 1994, 32 (11) p1433-43, ISSN 0041-0101 Journal Code: 1307333 Publishing Model Print Document type: Journal Article Languages: ENGLISH
Main Citation Owner: NLM Record type: MEDLINE; Completed
The scorpion venom Leiurus quinquestriatus hebreus was fractionated by chromatography in order to isolate toxins that affected binding of radiolabelled dendrotoxin to K+ channel proteins on synaptosomal membranes and that facilitated acetylcholine release in chick biventer cervicis nerve-muscle preparations. In addition to the previously characterized charybdotoxin , three toxins were isolated: 14-2, 15-1 and 18-2. Toxin 14-2 has a blocked N-terminus and because of low quantities, it has not been sequenced; 15-1 is a newly sequenced toxin of 36 residues with some overall homology to charybdotoxin and noxiustoxin; 18-2 is identical to charybdotoxin -2. The apparent Ki against dendrotoxin binding were: charybdotoxin , 3.8 nM; 14-2, 150 nM; 15-1, 50 nM; and 18-2, 0.25 nM. Toxin 14-2 (75 nM-1.5 microM) had a presynaptic facilitatory effect on neuromuscular preparations. Toxin 15-1 augmented responses to direct muscle stimulation, probably because it blocked Ca(2+)-activated K+ currents in muscle fibres. Toxin 18-2 (charybdotoxin -2) had a potent presynaptic facilitatory action, with less effect on direct muscle stimulation. This contrasts with the relatively weak neuromuscular effects of the highly homologous charybdotoxin . On a Ca(2+)-activated K+ current in mouse motor nerve endings, charybdotoxin and toxin 18-2 produced maximal block at around 100 nM, whereas 15-1 was inactive at 300 nM. Charybdotoxin can increase quantal content, but this is more likely to result from block of voltage-dependent K+ channels than Ca(2+)-activated channels: the increase in transmitter release occurred in conditions in which little IKCa would be present; higher concentration of charybdotoxin and longer exposure times were required to increase transmitter release than those needed to block IKCa, and the facilitatory effects of charybdotoxin and toxin 18-2 correlated more with their effects on dendrotoxin binding than on block of IKCa.
Record Date Created: 19950410 Record Date Completed: 19950410

6/7/45 (Item 45 from file: 155) DIALOG(R)File 155:MEDLINE(R) (c) format only 2005 Dialog. All rts. reserv.
08257702 PMID: 2453055
Purification, sequence, and model structure of charybdotoxin , a potent selective inhibitor of calcium-activated potassium channels.
Gimenez-Gallego G; Navia M A; Reuben J P; Katz G M; Kaczorowski G J; Garcia M L
Department of Growth Factor Research, Merck Sharp & Dohme Research Laboratories, Rahway, NJ 07065.
Proceedings of the National Academy of Sciences of the United States of America (UNITED STATES) May 1988, 85 (10) p3329-33, ISSN 0027-8424 Journal Code: 7505876 Publishing Model Print Document type: Journal Article
Languages: ENGLISH Main Citation Owner: NLM Record type: MEDLINE; Completed
Charybdotoxin (ChTX), a protein present in the venom of the scorpion Leiurus quinquestriatus var. hebraeus, has been purified to homogeneity by a combination of ion-exchange and reversed-phase chromatography. Polyacrylamide gel electrophoresis, amino acid analysis, and complete amino acid sequence determination of the pure protein reveal that it consists of a single polypeptide chain of 4.3 kDa. Purified ChTX is a potent and selective inhibitor of the approximately 220-pS Ca2+-activated K+ channel present in GH3 anterior pituitary cells and primary bovine aortic smooth muscle cells. The toxin reversibly blocks channel activity by interacting at the external pore of the channel protein with an apparent Kd of 2.1 nM. The primary structure of ChTX is similar to a number of neurotoxins of diverse origin, which suggests that ChTX is a member of a superfamily of proteins that modify ion-channel activities. On the basis of this similarity, the three-dimensional structure of ChTX has been modeled from the known crystal structure of alpha-bungarotoxin. These studies indicate that ChTX is useful as a probe of Ca2+-activated K+-channel function and suggest that the proposed tertiary structure of ChTX may provide insight into the mechanism of channel block.
Record Date Created: 19880622 Record Date Completed: 19880622

6/7/52 (Item 52 from file: 5) DIALOG(R)File 5:Biosis Previews(R) (c) 2005 BIOSIS. All rts. reserv.
0010206293 BIOSIS NO.: 199698674126
Synthesis and structural characterisation of analogues of the potassium channel blocker charybdotoxin
AUTHOR: Dyke Timothy R; Duggan Brendan M; Pennington Michael W; Byrnes Michael E; Kem William R; Norton Raymond S (Reprint)
AUTHOR ADDRESS: NMR Lab., Biomolecular Research Inst., 381 Royal Parade, Parkville, VIC 3052, Australia**Australia
JOURNAL: Biochimica et Biophysica Acta 1292 (1): p31-38 1996 1996 ISSN: 0006-3002 DOCUMENT TYPE: Article
RECORD TYPE: Abstract LANGUAGE: English
ABSTRACT: Charybdotoxin is a 37-residue polypeptide toxin from scorpion venom, which acts by blocking voltage-gated and Ca-2+-activated K+ channels. We have synthesized charybdotoxin and three mono-substituted analogues using an Fmoc-tBu protocol. The Phe-2 fwdarw Tyr analogue was chosen to introduce a site for Tyr iodination which was distinct from the K+ channel binding surface, while the Glu-12 fwdarw Gln and Arg-19 fwdarw His analogues were studied to probe the roles of charged residues at these positions in the structure and activity of the toxin . The synthetic native molecule was equipotent with natural toxin in inhibiting the human erythrocyte Ca-2+-dependent K+ channel. The affinities of all three analogues for the erythrocyte K+ channel were slightly reduced, with the Arg-19 fwdarw His analogue showing the greatest increase in IC-50 (2.3-fold). Two-dimensional 1H-NMR studies of these analogues showed that all three had structures very similar to those of the native molecule. The most significant perturbation was associated with the Glu-12 to Gln substitution, which appeared to destabilise the N-terminal half of the alpha-helix, possibly due to the weakening of an N-terminal helix capping interaction which is apparent from our NMR data. His-21 has a pK-a more than one unit below the value for a non-interacting histidine. Possible reasons for this are that the imidazolium side chain is partly buried and is located near positively charged moieties. Thus, His-21 would be neutral at physiological pH, where charybdotoxin binds to the potassium channel.

6/7/62 (Item 62 from file: 5) DIALOG(R)File 5:Biosis Previews(R) (c) 2005 BIOSIS. All rts. reserv.
0007742476 BIOSIS NO.: 199191125367
THREE-DIMENSIONAL STRUCTURE OF NATURAL CHARYBDOTOXIN IN AQUEOUS SOLUTION BY PROTON NMR CHARYBDOTOXIN POSSESSES A STRUCTURAL MOTIF FOUND IN OTHER SCORPION TOXINS
AUTHOR: BONTEMS F (Reprint); ROUMESTAND C; BOYOT P; GILQUIN B; DOLJANSKY Y; MENEZ A; TOMA F

AUTHOR ADDRESS: SERV DE BIOCHIM DES PROTEINES, LAB D'INGENIERIE DES PROTEINES BAT 152, CEN-SACLAY, F-91191 GIF-SUR-YVETTE, FR**FRANCE
JOURNAL: European Journal of Biochemistry 196 (1): p19-28 1991 ISSN: 0014-2956 DOCUMENT TYPE: Article
RECORD TYPE: Abstract LANGUAGE: ENGLISH
ABSTRACT: A 600-MHz proton NMR study of natural charybdotoxin , a toxin acting on K- channels, is reported. The unambiguous sequential assignment of all the protons of the toxin was achieved. The analysis of NOEs and of backbone coupling constants showed the existence of an .alpha.-helix (residues 10-19) and of an antiparallel .beta.-sheet in the 26 - 35 part. Three-dimensional structures were generated by distance geometry, using a set of 114 inter-residual calibrated constraints (63 sequential, 47 medium and long range, 4 hydrogen bonds) and 29 .PHI. angles. These structures show that charybdotoxin is composed of a .beta.-sheet linked to an .alpha.-helix by two disulphide bridges and to an extended fragment by the third disulphide bridge. Comparison with the other known structures of long and short scorpion toxins shows that this structural motif is common to all these proteins.

9/6/1 (Item 1 from file: 5) 0007115178 BIOSIS NO.: 199089033069
ANALYSIS OF THE BLOCKING ACTIVITY OF CHARYBDOTOXIN HOMOLOGS AND IODINATED DERIVATIVES AGAINST CALCIUM-ACTIVATED POTASSIUM CHANNELS 1989

9/6/2 (Item 2 from file: 155) 08751880 PMID: 2477548
Analysis of the blocking activity of charybdotoxin homologs and iodinated derivatives against Ca2+-activated K+ channels. Aug 1989

9/6/3 (Item 3 from file: 155) 08675595 PMID: 2473920
Charybdotoxin blocks both Ca-activated K channels and Ca-independent voltage-gated K channels in rat brain synaptosomes. Jul 3 1989

9/6/4 (Item 4 from file: 155) 08859199 PMID: 2482078
Charybdotoxin is a new member of the K+ channel toxin family that includes dendrotoxin I and mast cell degranulating peptide. Dec 12 1989

9/6/5 (Item 5 from file: 5) 0007133033 BIOSIS NO.: 199089050924
CHARYBDOTOXIN IS A NEW MEMBER OF THE POTASSIUM CHANNEL TOXIN FAMILY THAT INCLUDES DENDROTOXIN I AND MAST CELL DEGRANULATING PEPTIDE 1989

9/6/6 (Item 6 from file: 5) 0006941512 BIOSIS NO.: 199038119403
CHARYBDOTOXIN IS A NEW MEMBER OF THE TOXIN FAMILY THAT INCLUDES DENDROTOXIN I AND MCD AND BLOCKS DENDROTOXIN-SENSITIVE VOLTAGE ACTIVATED POTASSIUM CHANNELS 1990

9/6/7 (Item 7 from file: 5) 0011349339 BIOSIS NO.: 199800143586
Consequence of the removal of evolutionary conserved disulfide bridges on the structure and function of charybdotoxin and evidence that particular cysteine spacing govern specific disulfide bond formation 1998

9/6/8 (Item 8 from file: 155) 08571405 PMID: 2468961
Effect of some potassium channel blockers on contractile responses of the rabbit aorta. Feb 1989

9/6/9 (Item 9 from file: 5) 0006395808 BIOSIS NO.: 198936104699
LEIURUS- QUINQUESTRIATUS VENOM PEPTIDES THAT BLOCK BRAIN VOLTAGE-GATED AND CALCIUM-ACTIVATED POTASSIUM CHANNELS ALSO INHIBIT DENDROTOXIN BINDING TO SYNAPTIC MEMBRANES 1989

9/6/10 (Item 10 from file: 155) 10823421 PMID: 7819188
NMR sequential assignments and solution structure of chlorotoxin, a small scorpion toxin that blocks chloride channels. Jan 10 1995

9/6/11 (Item 11 from file: 5) 0009648827 BIOSIS NO.: 199598116660
NMR Sequential Assignments and Solution Structure of Chlorotoxin, a Small Scorpion Toxin That Blocks Chloride Channels 1995

9/6/12 (Item 12 from file: 155) 10895806 PMID: 7533951
Neuromuscular effects of some potassium channel blocking toxins from the venom of the scorpion Leiurus quinquestriatus hebreus. Nov 1994

9/6/13 (Item 13 from file: 5) 0009575215 BIOSIS NO.: 199598043048
Neuromuscular effects of some potassium channel blocking toxins from the venom of the scorpion Leiurus quinquestriatus hebreus 1994

9/6/14 (Item 14 from file: 155) 09990086 PMID: 1280139
Noxiustoxin and leiurutoxin III, two homologous peptide toxins with binding properties to synaptosomal membrane K+ channels. Sep 1992

9/6/15 (Item 15 from file: 5) 0008709107 BIOSIS NO.: 199395011373
Noxiustoxin and leiurutoxin III, two homologous peptide toxins with binding properties to synaptosomal membrane potassium channels 1992

9/6/16 (Item 16 from file: 5) 0008984542 BIOSIS NO.: 199497005827
Synthesis of charybdotoxin and of two N-terminal truncated analogues : Structural and functional characterization 1993

9/6/17 (Item 17 from file: 5) 0010206293 BIOSIS NO.: 199698674126
Synthesis and structural characterisation of analogues of the potassium channel blocker charybdotoxin 1996

9/6/18 (Item 18 from file: 5) 0009025088 BIOSIS NO.: 199497046373
Toxin pharmacology of the large-conductance Ca-2+-activated K+ channel in the apical membrane of rabbit proximal convoluted tubule in rimary culture 1993

12/6/1 (Item 1 from file: 155) 11322494 PMID: 8645186
A novel structural class of K+-channel blocking toxin from the scorpion Pandinus imperator. May 1 1996

13/6/1 (Item 1 from file: 155) 11322494 PMID: 8645186
A novel structural class of K+-channel blocking toxin from the scorpion Pandinus imperator. May 1 1996

13/6/2 (Item 1 from file: 5) 0010380507 BIOSIS NO.: 199699014567
A novel structural class of K+-channel blocking toxin from the scorpion Pandinus imperator
1996

16/6/1 (Item 1 from file: 155) 12140757 PMID: 9438859
Solution structure and proposed binding mechanism of a novel potassium channel toxin kappa-conotoxin PVIIA. Dec 15 1997

16/6/2 (Item 1 from file: 5) 0011293829 BIOSIS NO.: 199800088076
Solution structure and proposed binding mechanism of a novel potassium channel toxin kappa-conotoxin PVIIA 1997

19/6/1 (Item 1 from file: 155) 10204659 PMID: 7685635
An activator of calcium-dependent potassium channels isolated from a medicinal herb. Jun 22 1993

19/6/2 (Item 2 from file: 155) 15271073 PMID: 15051409
Antigenic polymorphism of the "short" scorpion toxins able to block K+ channels. Mar 15 2004

19/6/3 (Item 3 from file: 5) 0005645783 BIOSIS NO.: 198783124674
BLOCKING AGENTS OF CALCIUM-ACTIVATED POTASSIUM CHANNELS IN CULTURED MEDULLARY THICK ASCENDING LIMB CELLS 1987

19/6/4 (Item 4 from file: 155) 07821071 PMID: 2435161
Blocking agents of Ca2+-activated K+ channels in cultured medullary thick ascending limb cells. Feb 1987

19/6/5 (Item 5 from file: 155) 17947714 PMID: 15695820
BmP09, a "long chain" scorpion peptide blocker of BK channels. Apr 15 2005

19/6/6 (Item 6 from file: 5) 0008848545 BIOSIS NO.: 199396012961
Calcium-activated potassium transport in erythrocytes: Comparison of binding and transport inhibition by scorpion toxins 1993

19/6/7 (Item 7 from file: 155) 10517036 PMID: 8297371
Chemical synthesis and structure-function studies of margatoxin, a potent inhibitor of voltage-dependent potassium channel in human T lymphocytes. Jan 28 1994

19/6/8 (Item 8 from file: 155) 08816237 PMID: 2480347
Characterization of high affinity binding sites for charybdotoxin in sarcolemmal membranes from bovine aortic smooth muscle. Evidence for a direct association with the high conductance calcium-activated potassium channel. Dec 15 1989

19/6/9 (Item 9 from file: 155) 11411894 PMID: 8706835
Characterization of a new peptide from Tityus serrulatus scorpion venom which is a ligand of the apamin-binding site. Jul 15 1996

19/6/10 (Item 10 from file: 155) 16507366 PMID: 15189853
Computational simulations of interactions of scorpion toxins with the voltage-gated potassium ion channel. Jun 2004

19/6/11 (Item 11 from file: 5) 0014960511 BIOSIS NO.: 200400331297
Computational simulations of interactions of scorpion toxins with the voltage-gated potassium ion channel 2004

19/6/12 (Item 12 from file: 155) 12172929 PMID: 9477955
Consequence of the removal of evolutionary conserved disulfide bridges on the structure and function of charybdotoxin and evidence that particular cysteine spacings govern specific disulfide bond formation. Feb 3 1998

19/6/13 (Item 13 from file: 155) 11091649 PMID: 7545007
Cross-linking of charybdotoxin to high-conductance calcium-activated potassium channels: identification of the covalently modified toxin residue. Aug 29 1995

19/6/14 (Item 14 from file: 155) 11196506 PMID: 8531201
Ca(2+)-activated K+ channels of human and rabbit erythrocytes display distinctive patterns of inhibition by venom peptide toxins. Sep 1995

19/6/15 (Item 15 from file: 155) 10145953 PMID: 7682555
Ca(2+)-activated K+ transport in erythrocytes. Comparison of binding and transport inhibition by scorpion toxins. Apr 25 1993

19/6/16 (Item 16 from file: 155) 09358728 PMID: 1706481

Determination of the subunit stoichiometry of a voltage-activated potassium channel. Mar 21 1991

19/6/17 (Item 17 from file: 155) 11224805 PMID: 8527429
Determination of the three-dimensional solution structure of noxiustoxin: analysis of structural differences with related short-chain scorpion toxins. Dec 26 1995

19/6/18 (Item 18 from file: 155) 09906670 PMID: 1381959
Determination of the three-dimensional structure of iberiotoxin in solution by 1H nuclear magnetic resonance spectroscopy. Sep 8 1992

19/6/19 (Item 19 from file: 155) 12196378 PMID: 9504384
Effect of Tityus serrulatus scorpion venom on the rabbit isolated corpus cavernosum and the involvement of NANC nitrergic nerve fibres. Feb 1998

19/6/20 (Item 20 from file: 155) 13573819 PMID: 11155206
Effects of toxins Pi2 and Pi3 on human T lymphocyte Kv1.3 channels: the role of Glu7 and Lys24. Jan 1 2001

19/6/21 (Item 21 from file: 155) 08469848 PMID: 2464066
An emerging pharmacology of peptide toxins targeted against potassium channels. Oct 1988

19/6/22 (Item 22 from file: 155) 14389721 PMID: 12220678
Glycine 30 in iberiotoxin is a critical determinant of its specificity for maxi-K versus K(V) channels. Sep 11 2002

19/6/23 (Item 23 from file: 155) 13705739 PMID: 11352729
Interaction of a toxin from the scorpion Tityus serrulatus with a cloned K+ channel from squid (sqKv1A). May 22 2001

19/6/24 (Item 24 from file: 155) 17279256 PMID: 15165720
Kbot1, a three disulfide bridges toxin from Buthus occitanus tunetanus venom highly active on both SK and Kv channels. Apr 2004

19/6/25 (Item 25 from file: 5) 0008234656 BIOSIS NO.: 199293077547
KALIOTOXIN A NOVEL PEPTIDYL INHIBITOR OF NEURONAL BK-TYPE CALCIUM-ACTIVATED POTASSIUM CHANNELS CHARACTERIZED FROM ANDROCTONUS-MAURETANICUS-MAURETANICUS VENOM 1992

19/6/26 (Item 26 from file: 155) 09629861 PMID: 1730708
Kaliotoxin, a novel peptidyl inhibitor of neuronal BK-type Ca(2+)-activated K+ channels characterized from Androctonus mauretanicus mauretanicus venom. Jan 25 1992

19/6/27 (Item 27 from file: 155) 10742600 PMID: 7524673
Kaliotoxin (1-37) shows structural differences with related potassium channel blockers. Nov 29 1994

19/6/28 (Item 28 from file: 5) 0009610999 BIOSIS NO.: 199598078832
Kaliotoxin (1-37) shows structural differences with related potassium channel blockers 1994

19/6/29 (Item 29 from file: 155) 09853502 PMID: 1379069
Mechanism of iberiotoxin block of the large-conductance calcium-activated potassium channel from bovine aortic smooth muscle. Jul 28 1992

19/6/30 (Item 30 from file: 155) 12969238 PMID: 10920011
Mechanisms of maurotoxin action on Shaker potassium channels. Aug 2000

19/6/31 (Item 31 from file: 5) 0008413156 BIOSIS NO.: 199294114997
MODE OF ACTION OF IBERIOTOXIN A POTENT BLOCKER OF THE LARGE CONDUCTANCE CALCIUM ACTIVATED POTASSIUM CHANNEL 1992

19/6/32 (Item 32 from file: 155) 09957833 PMID: 1384740
Mode of action of iberiotoxin, a potent blocker of the large conductance Ca(2+)-activated K+ channel. Aug 1992

19/6/33 (Item 33 from file: 155) 14645123 PMID: 12560073
Molecular dynamics simulations of a K+ channel blocker: Tc1 toxin from Tityus cambridgei. Jan 30 2003

19/6/34 (Item 34 from file: 155) 14194806 PMID: 11864985
Mapping the binding site of a human ether-a-go-go-related gene-specific peptide toxin (ErgTx) to the channel's outer vestibule. May 10 2002

19/6/35 (Item 35 from file: 5) 0013745123 BIOSIS NO.: 200200338634
Mapping the binding site of a human ether-a-go-go-related gene-specific peptide toxin (ErgTx) to the channel's outer vestibule 2002

19/6/36 (Item 36 from file: 155) 09208395 PMID: 1702643
Mapping the receptor site for charybdotoxin , a pore-blocking potassium channel inhibitor. Dec 1990

19/6/37 (Item 37 from file: 155) 13436286 PMID: 10398697
A marine snail neurotoxin shares with scorpion toxins a convergent mechanism of blockade on the pore of voltage-gated K channels. Jul 1999

19/6/38 (Item 38 from file: 5) 0012127174 BIOSIS NO.: 199900386834
A marine snail neurotoxin shares with scorpion toxins a convergent mechanism of blockade on the pore of voltage-gated K channels 1999

19/6/39 (Item 39 from file: 155) 14633777 PMID: 12538890
Motions and structural variability within toxins: implication for their use as scaffolds for protein engineering. Feb 2003

19/6/40 (Item 40 from file: 5) 0014168498 BIOSIS NO.: 200300125608
Motions and structural variability within toxins: Implication for their use as scaffolds for protein engineering. 2003

19/6/41 (Item 41 from file: 155) 11833908 PMID: 9092804
NMR solution structure of a two-disulfide derivative of charybdotoxin :0 structural evidence for conservation of scorpion toxin alpha/beta motif and its hydrophobic side chain packing. Apr 1 1997

19/6/42 (Item 42 from file: 155) 11322494 PMID: 8645186
A novel structural class of K+-channel blocking toxin from the scorpion Pandinus imperator. May 1 1996

19/6/43 (Item 43 from file: 5) 0012367417 BIOSIS NO.: 200000085730
A point mutation in the maxi-K clone dSlo forms a high affinity site for charybdotoxin 1999

19/6/44 (Item 44 from file: 155) 10274627 PMID: 8360176
Purification, characterization, and biosynthesis of margatoxin, a component of Centruroides margaritatus venom that selectively inhibits voltage-dependent potassium channels. Sep 5 1993

19/6/45 (Item 45 from file: 5) 0008972783 BIOSIS NO.: 199396137199
Purification, characterization, and biosynthesis of margatoxin, a component of Centruroides margaritatus venom that selectively inhibits voltage-dependent potassium channels 1993

19/6/46 (Item 46 from file: 155) 14164320 PMID: 11952787
Purification, characterization and biosynthesis of parabutoxin 3, a component of Parabuthus transvaalicus venom. Apr 2002

19/6/47 (Item 47 from file: 5) 0013693181 BIOSIS NO.: 200200286692
Purification, characterization and biosynthesis of parabutoxin 3, a component of Parabuthus transvaalicus venom 2002

19/6/48 (Item 48 from file: 155) 09024601 PMID: 1694175
Purification and characterization of a unique, potent, peptidyl probe for the high conductance calcium-activated potassium channel from venom of the scorpion Buthus tamulus. Jul 5 1990

19/6/49 (Item 49 from file: 5) 0007279032 BIOSIS NO.: 199090063511
PURIFICATION AND CHARACTERIZATION OF A UNIQUE POTENT PEPTIDYL PROBE FOR THE HIGH CONDUCTANCE CALCIUM-ACTIVATED POTASSIUM CHANNEL FROM VENOM OF THE SCORPION BUTHUS-TAMULUS 1990

19/6/50 (Item 50 from file: 155) 12065981 PMID: 9354615
Purification, characterization, and synthesis of three novel toxins from the Chinese scorpion Buthus martensi, which act on K+ channels. Nov 4 1997

19/6/51 (Item 51 from file: 155) 12569895 PMID: 9891977
Purification and partial characterization of a 'short' insectotoxin-like peptide from the venom of the scorpion Parabuthus schlechteri. Dec 28 1998

19/6/52 (Item 52 from file: 5) 0011824566 BIOSIS NO.: 199900084226
Purification and partial characterization of a 'short' insectotoxin-like peptide from the venom of the scorpion Parabuthus schlechteri 1998

19/6/53 (Item 53 from file: 155) 10018942 PMID: 1467342
Progress in multidimensional NMR investigations of peptide and protein 3-D structures in solution. From structure to functional aspects. Sep-Oct 1992

19/6/54 (Item 54 from file: 5) 0008744162 BIOSIS NO.: 199395046428
Progress in multidimensional NMR investigations of peptide and protein 3-D structures in solution: From structure to functional aspects 1992

19/6/55 (Item 55 from file: 155) 12054583 PMID: 9441593
[The rational evolution of scorpion toxins] Ratsional'naya 'evolyutsiya toksinov iz yada skorpionov Sep 1997

19/6/56 (Item 56 from file: 5) 0011277181 BIOSIS NO.: 199800071428
The rational evolution of scorpion toxins 1997

19/6/57 (Item 57 from file: 155) 12019132 PMID: 9306273
Scorpion toxin block of the early K+ current (IKf) in rat dorsal root ganglion neurones. Sep 1 1997

19/6/58 (Item 58 from file: 5) 0011155973 BIOSIS NO.: 199799790033
Scorpion toxin block of the early K+ current (I-Kf) in rat dorsal root ganglion neurons 1997

19/6/59 (Item 59 from file: 155) 15269022 PMID: 15049683
Solution structure of BmBKTx1, a new BKCa1 channel blocker from the Chinese scorpion Buthus martensi Karsch. Apr 6 2004

19/6/60 (Item 60 from file: 5) 0014975010 BIOSIS NO.: 200400345799
Solution structure of BmBKTx1, a new BKCa1 channel blocker from the Chinese scorpion Buthus martensi Karscht 2004

19/6/61 (Item 61 from file: 155) 14028726 PMID: 11790849
Solution structure of a K(+)-channel blocker from the scorpion Tityus cambridgei. Feb 2002

19/6/62 (Item 62 from file: 155) 11808576 PMID: 9062103
Solution structure for Pandinus toxin K-alpha (PiTX-K alpha), a selective blocker of A-type potassium channels. Mar 11 1997

19/6/63 (Item 63 from file: 155) 12075374 PMID: 9365990
Solution structure of TsKapa, a charybdotoxin-like scorpion toxin from Tityus serrulatus with high affinity for apamin-sensitive Ca(2+)-activated K+ channels. Nov 1997

19/6/64 (Item 64 from file: 5) 0010328748 BIOSIS NO.: 199698796581
Solution structure of ShK toxin, a novel potassium channel inhibitor from a sea anemone 1996

19/6/65 (Item 65 from file: 155) 11968450 PMID: 9252467
Sapecin B, a novel fly toxin, blocks macroscopic K+ currents in the GH3 rat pituitary cell line. Jul 1997

19/6/66 (Item 66 from file: 5) 0011067804 BIOSIS NO.: 199799701864
Sapecin B, a novel fly toxin, blocks macroscopic K+ currents in the GH-3 rat pituitary cell line 1997

19/6/67 (Item 67 from file: 5) 0012839066 BIOSIS NO.: 200100010905
Structure determinants of scorpion toxin affinity: The charybdotoxin (alpha-KTX) family of K+-channel blocking peptides BOOK TITLE: Reviews of Physiology Biochemistry and Pharmacology 2000

19/6/68 (Item 68 from file: 155) 12909571 PMID: 10857399
Structural determinants of scorpion toxin affinity: the charybdotoxin (alpha-KTX) family of K(+)-channel blocking peptides. 2000

19/6/69 (Item 69 from file: 155) 12782762 PMID: 10707030
Structural and functional differences of two toxins from the scorpion Pandinus imperator. Mar 1 2000

19/6/70 (Item 70 from file: 5) 0012447874 BIOSIS NO.: 200000166187
Structural and functional differences of two toxins from the scorpion Pandinus imperator 2000

19/6/71 (Item 71 from file: 5) 0010988956 BIOSIS NO.: 199799623016
Structural analysis of a two disulfide bridge analogue of a scorpion toxin 1997

19/6/72 (Item 72 from file: 155) 10377674 PMID: 8253752
Synthesis and characterization of kaliotoxin. Is the 26-32 sequence essential for potassium channel recognition? Dec 15 1993

19/6/73 (Item 73 from file: 155) 10341798 PMID: 7693459
Synthesis of charybdotoxin and of two N-terminal truncated analogues. Structural and functional characterisation. Oct 1 1993

19/6/74 (Item 74 from file: 155) 11245554 PMID: 8547346
Synthesis and structural characterisation of analogues of the potassium channel blocker charybdotoxin. Jan 4 1996

19/6/75 (Item 75 from file: 155) 11180566 PMID: 7576659
Topology of the pore-region of a K+ channel revealed by the NMR-derived structures of scorpion toxins. Nov 1995

19/6/76 (Item 76 from file: 155) 10582194 PMID: 7514038
Tremorgenic indole alkaloids potently inhibit smooth muscle high-conductance calcium-activated potassium channels. May 17 1994

19/6/77 (Item 77 from file: 155) 14501863 PMID: 12445473
Two novel toxins from the Amazonian scorpion Tityus cambridgei that block Kv1.3 and Shaker B K(+)-channels with distinctly different affinities. Dec 16 2002

19/6/78 (Item 78 from file: 155) 12343405 PMID: 9655636
Two similar peptides from the venom of the scorpion Pandinus imperator, one highly effective blocker and the other inactive on K+ channels. May 1998

19/6/79 (Item 79 from file: 5) 0011532158 BIOSIS NO.: 199800326405
Two similar peptides from the venom of the scorpion Pandinus imperator, one highly effective blocker and the other inactive on K+ channels 1998

19/6/80 (Item 80 from file: 155) 11603837 PMID: 8913348
Three new toxins from the scorpion Pandinus imperator selectively block certain voltage-gated K+ channels. Nov 1996

19/6/81 (Item 81 from file: 5) 0010694277 BIOSIS NO.: 199799328337
Three new toxins from the scorpion Pandinus imperator selectively block certain voltage-gated K+ channels 1996

24/6/1 (Item 1 from file: 155) 11928755 PMID: 9208943
Anti-insect toxin 5 (AaIT5) from Androctonus australis. Jun 1 1997

24/6/2 (Item 2 from file: 5) 0010977935 BIOSIS NO.: 199799611995
Anti-insect toxin 5 (AaIT5) from Androctonus australis 1997

24/6/3 (Item 3 from file: 357) 0206373 DBR Accession No.: 97-01494
Control of insects, acari and nematodes - recombinant Autographa californica nuclear-polyhedrosis virus vector-mediated scorpion, wasp, snail, mite or spider venom toxin gene expression for use as a biological control agent 1996

24/6/4 (Item 4 from file: 155) 11146500 PMID: 8533143
Positive cooperativity among insecticidal scorpion neurotoxins. Aug 1995

24/6/5 (Item 5 from file: 5) 0009989127 BIOSIS NO.: 199598456960
Positive cooperativity among insecticidal scorpion neurotoxins 1995

24/6/6 (Item 6 from file: 155) 12339622 PMID: 9652392
A depressant insect-selective toxin analog from the venom of the scorpion Leiurus quinquestriatus hebraeus--purification and structure/function characterization. May 15 1998

24/6/7 (Item 7 from file: 5) 0011517804 BIOSIS NO.: 199800312051
A depressant insect-selective toxin analog from the venom of the scorpion Leiurus quinquestriatus hebraeus: Purification and structure/function characterization 1998

24/6/8 (Item 8 from file: 155) 10940776 PMID: 7722081
Direct effects of recombinant nuclear polyhedrosis viruses on selected nontarget organisms. Apr 1995

24/6/9 (Item 9 from file: 5) 0009776610 BIOSIS NO.: 199598244443
Direct effects of recombinant nuclear polyhedrosis viruses on selected nontarget organisms 1995

24/6/10 (Item 10 from file: 5) 0014296947 BIOSIS NO.: 200300255666
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2. 2003

24/6/11 (Item 11 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

24/6/12 (Item 12 from file: 155) 12084031 PMID: 9374595
Interactions of recombinant and wild-type baculoviruses with classical insecticides and pyrethroid-resistant tobacco budworm (Lepidoptera: Noctuidae). Oct 1997

24/6/13 (Item 13 from file: 5) 0009921314 BIOSIS NO.: 199598389147
Insect sodium channel as the target for insect-selective neurotoxins from scorpion venom BOOK TITLE: ACS Symposium Series; Molecular action of insecticides on ion channels 1995

24/6/14 (Item 14 from file: 5) 0009184411 BIOSIS NO.: 199497205696
The insect sodium channel as the target for the insect selective neurotoxins from scorpion venom 1994

24/6/15 (Item 15 from file: 5) 0010929668 BIOSIS NO.: 199799563728
Insect tolerance to a neurotoxic polypeptide: Pharmacokinetic and pharmacodynamic aspects 1997

24/6/16 (Item 16 from file: 155) 14493200 PMID: 11782289
Isolation and characterization of a novel lepidopteran-selective toxin from the venom of South Indian red scorpion, Mesobuthus tamulus. 2001

24/6/17 (Item 17 from file: 5) 0013793895 BIOSIS NO.: 200200387406
Isolation and characterization of a novel lepidopteran-selective toxin from the venom of South Indian red scorpion, Mesobuthus tamulus 2001

24/6/18 (Item 18 from file: 357) 0264969 DBR Accession No.: 2001-04723
New polynucleotides encoding scorpion venom potassium channel-agonist proteins for producing e.g. of insect-tolerant transgenic plants for controlling insect pest damage and parasitic worm infections - scorpion venom potassium channel-agonist protein genes useful for constructing transgenic plant with insect resistance 2000

24/6/19 (Item 19 from file: 357) 0264374 DBR Accession No.: 2001-04128
New isolated polynucleotide encoding a scorpion toxin for treating epilepsy, degenerative disorders such as Huntington's disease, and neuronal death following stroke, and for creating plants that are insect tolerant - transgenic plant construction with insect resistance and gene therapy 2000

24/6/20 (Item 20 from file: 5) 0008664579 BIOSIS NO.: 199345095567
Potential of baculoviruses expressing a scorpion toxin and an esterase in agriculture 1993

24/6/21 (Item 21 from file: 357) 0153538 DBR Accession No.: 93-11590

Potential of baculo viruses expressing a scorpion toxin and an esterase in agriculture - use of recombinant baculo virus with a Heliothis virescens juvenile-hormone-esterase as an insect biological control agent (conference abstract) 1993

24/6/22 (Item 22 from file: 155) 12317587 PMID: 9627406
Rapid purification and molecular modeling of AaIT peptides from venom of Androctonus australis. 1998

24/6/23 (Item 23 from file: 5) 0011525675 BIOSIS NO.: 199800319922
Rapid purification and molecular modeling of AaIT peptides from venom of Androctonus australis 1998

24/6/24 (Item 24 from file: 5) 0014912774 BIOSIS NO.: 200400283531
Scorpian toxins 2004

24/6/25 (Item 25 from file: 5) 0007297260 BIOSIS NO.: 199090081739
A SCORPION VENOM NEUROTOXIN PARALYTIC TO INSECTS THAT AFFECTS SODIUM CURRENT INACTIVATION PURIFICATION PRIMARY STRUCTURE AND MODE OF ACTION 1990

24/6/26 (Item 26 from file: 155) 09075706 PMID: 2383565
A scorpion venom neurotoxin paralytic to insects that affects sodium current inactivation: purification, primary structure, and mode of action. Jun 26 1990

24/6/27 (Item 27 from file: 5) 0007645125 BIOSIS NO.: 199191028016
THE TOLERANCE OF LEPIDOPTEROUS LARVAE TO AN INSECT SELECTIVE NEUROTOXIN 1990

24/6/28 (Item 28 from file: 5) 0009069061 BIOSIS NO.: 199497090346
Variability among insect sodium channels revealed by selective neurotoxins 1994

24/6/29 (Item 29 from file: 5) 0010988996 BIOSIS NO.: 199799623056
Two novel short insectotoxins from the Asian scorpions Buthus martensi and Buthus tamulus 1997

24/7/6 (Item 6 from file: 155) DIALOG(R)File 155:MEDLINE(R)(c) format only 2005 Dialog. All rts. reserv.
12339622 PMID: 9652392
A depressant insect-selective toxin analog from the venom of the scorpion Leiurus quinquestriatus hebraeus--purification and structure/function characterization.
Moskowitz H; Herrmann R ; Jones A D; Hammock B D
Department of Entomology, University of California, Davis 95616, USA.
European journal of biochemistry / FEBS (GERMANY) May 15 1998, 254 (1) p44-9, ISSN 0014-2956 Journal Code: 0107600 Contract/Grant No.: P 30 ES05707; ES; NIEHS Publishing Model Print Document type: Journal Article
Languages: ENGLISH Main Citation Owner: NLM Record type: MEDLINE; Completed
The scorpion venom-derived excitatory and depressant insect-selective polypeptide neurotoxins modify sodium conductance in insect neuronal membranes and differ greatly in their primary structures and symptoms induced in blow fly larvae. We report here the purification and characterization of a new insect selective toxin, LqhIT5. LqhIT5 is more similar to the excitatory toxins in its mode of action and the depressant toxins in its primary structure. This toxin is a single polypeptide composed of 61 amino acids that are cross linked by four disulfide bonds. When LqhIT5 is injected into blow fly larvae, a fast contraction paralysis occurs without depressant activity. No mammalian toxicity was detected by subcutaneous or intracranial injections of this toxin into mice. Sequence comparison of LqhIT5 and known depressant toxins shows a high degree of similarity among the amino acids located on the C-terminus of the toxins. However, there are some clear differences in the amino acids located close to the N-terminus of the toxins. By the aid of homology modeling, we demonstrated that these amino acids have the same orientation in the tertiary structure of the molecule and are exposed to the environment. The change in the mode of action of LqhIT5 (no depressant activity) by substitutions of a few amino acids located on a specific exposed area of the toxin shed a new light on the structure/function relationship of scorpion toxins. These results caution that similarity in the mechanism of action of scorpion toxins does not always follow from an overall similarity in sequence.
Record Date Created: 19980728 Record Date Completed: 19980728

26/6/1 (Item 1 from file: 155) 11928755 PMID: 9208943
Anti-insect toxin 5 (AaIT5) from Androctonus australis. Jun 1 1997

26/6/2 (Item 2 from file: 5) 0010977935 BIOSIS NO.: 199799611995
Anti-insect toxin 5 (AaIT5) from Androctonus australis 1997

26/6/3 (Item 3 from file: 155) 12339622 PMID: 9652392
A depressant insect-selective toxin analog from the venom of the scorpion Leiurus quinquestriatus hebraeus--purification and structure/function characterization. May 15 1998

26/6/4 (Item 4 from file: 5) 0011517804 BIOSIS NO.: 199800312051
A depressant insect-selective toxin analog from the venom of the scorpion Leiurus quinquestriatus hebraeus: Purification and structure/function characterization 1998

26/6/5 (Item 5 from file: 5) 0014296947 BIOSIS NO.: 200300255666
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2. 2003

26/6/6 (Item 6 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

26/6/7 (Item 7 from file: 5) 0007297260 BIOSIS NO.: 199090081739
A SCORPION VENOM NEUROTOXIN PARALYTIC TO INSECTS THAT AFFECTS SODIUM CURRENT INACTIVATION PURIFICATION PRIMARY STRUCTURE AND MODE OF ACTION 1990

26/6/8 (Item 8 from file: 155) 09075706 PMID: 2383565
A scorpion venom neurotoxin paralytic to insects that affects sodium current inactivation: purification, primary structure, and mode of action. Jun 26 1990

26/6/9 (Item 9 from file: 5) 0009069061 BIOSIS NO.: 199497090346
Variability among insect sodium channels revealed by selective neurotoxins 1994

28/6/1 (Item 1 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

29/6/1 (Item 1 from file: 5) 0014419169 BIOSIS NO.: 200300377888
Scorpion toxins 2003

29/6/2 (Item 1 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

29/6/3 (Item 2 from file: 357) 0256837 DBR Accession No.: 2000-11327
New nucleic acid fragment encoding a scorpion toxin that is potassium channel-agonist, useful for creating transgenic plants that are more insect-tolerant - method is useful for producing transgenic plant with insect resistance 2000

33/6/1 (Item 1 from file: 5) 0014296947 BIOSIS NO.: 200300255666
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2. 2003

33/6/2 (Item 1 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

34/6/1 (Item 1 from file: 5) 0014419169 BIOSIS NO.: 200300377888
Scorpion toxins 2003

34/6/2 (Item 2 from file: 5) 0014296947 BIOSIS NO.: 200300255666
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2. 2003

34/6/3 (Item 1 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

34/6/4 (Item 2 from file: 357) 0256837 DBR Accession No.: 2000-11327
New nucleic acid fragment encoding a scorpion toxin that is potassium channel-agonist, useful for creating transgenic plants that are more insect-tolerant - method is useful for producing transgenic plant with insect resistance 2000

43/6/1 (Item 1 from file: 155) 09694018 PMID: 1796479
The cDNA sequence of a depressant insect selective neurotoxin from the scorpion Buthotus judaicus. 1991

43/6/2 (Item 2 from file: 5) 0008168878 BIOSIS NO.: 199293011769
THE CDNA SEQUENCE OF A DEPRESSANT INSECT SELECTIVE NEUROTOXIN FROM THE SCORPION BUTHOTUS-JUDAICUS 1991

43/6/3 (Item 3 from file: 155) 12780322 PMID: 10708793
Cloning and characterization of a cDNA sequence encoding the precursor of a chlorotoxin-like peptide from the Chinese scorpion Buthus martensii Karsch. Aug 2000

43/6/4 (Item 4 from file: 5) 0012519314 BIOSIS NO.: 200000237627
Cloning and characterization of a cDNA sequence encoding the precursor of a chlorotoxin-like peptide from the Chinese Scorpion Buthus martensii Karsch 2000

43/6/5 (Item 5 from file: 5) 0014778747 BIOSIS NO.: 200400145408
Cytotoxic and apoptotic effects of scorpion Leiurus quinquestriatus venom on 293T and C2C12 eukaryotic cell lines. 2003

43/6/6 (Item 6 from file: 155) 10074904 PMID: 8431601
Depressant insect selective neurotoxins from scorpion venom: chemistry, action, and gene cloning. 1993

43/6/7 (Item 7 from file: 5) 0011914925 BIOSIS NO.: 199900174585
Dynamic diversification from a putative common ancestor of scorpion toxins affecting sodium, potassium, and chloride channels 1999

43/6/8 (Item 8 from file: 5) 0007735556 BIOSIS NO.: 199191118447
DESIGN SYNTHESIS AND FUNCTIONAL EXPRESSION OF A GENE FOR CHARYBDOTOXIN A PEPTIDE BLOCKER OF POTASSIUM ION CHANNELS 1991

43/6/9 (Item 9 from file: 155) 12095528 PMID: 9395089
Influence of a NH2-terminal extension on the activity of KTX2, a K+ channel blocker purified from Androctonus australis scorpion venom. Nov 3 1997

43/6/10 (Item 10 from file: 5) 0014296947 BIOSIS NO.: 200300255666
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2. 2003

43/6/11 (Item 11 from file: 357) 0313302 DBR Accession No.: 2003-14442
Effect of signal sequence and promoter on the speed of action of a genetically modified Autographa californica nucleopolyhedrovirus expressing the scorpion toxin LqhIT2 - scorpion venom toxin expression in nuclear-polyhedrosis virus for biological control agent strain improvement 2003

43/6/12 (Item 12 from file: 155) 12401430 PMID: 9714546
Evidence for a new class of scorpion toxins active against K+ channels. Jul 24 1998

43/6/13 (Item 13 from file: 155) 11211987 PMID: 7498537
Functional expression of an alpha anti-insect scorpion neurotoxin in insect cells and lepidopterous larvae. Dec 4 1995

43/6/14 (Item 14 from file: 5) 0010170013 BIOSIS NO.: 199698637846
Functional expression of an alpha anti-insect scorpion neurotoxin in insect cells and lepidopterous larvae 1995

43/6/15 (Item 15 from file: 357) 0191434 DBR Accession No.: 96-02205
Functional expression of an alpha anti-insect scorpion neurotoxin in insect cells and lepidopterous larvae - Autographa californica nuclear-polyhedrosis virus vector allows insecticide expression in insect cell culture or larva 1995

43/6/16 (Item 16 from file: 5) 0012082499 BIOSIS NO.: 199900342159
Genomic organization of three neurotoxins active no small conductance Ca2+-activated potassium channels from the scorpion Buthus martensi Karsch 1999

43/6/17 (Item 17 from file: 155) 18326469 PMID: 15966742
Genetic polymorphism and expression of a highly potent scorpion depressant toxin enable refinement of the effects on insect Na channels and illuminate the key role of Asn-58. Jun 28 2005

43/6/18 (Item 18 from file: 5) 0015265895 BIOSIS NO.: 200500172631
Improved plant protective efficacy of a baculovirus using an early promoter to drive insect-specific neurotoxin expression 2005

43/6/19 (Item 19 from file: 155) 15422272 PMID: 15133045
Molecular basis of the high insecticidal potency of scorpion alpha-toxins. Jul 23 2004

43/6/20 (Item 20 from file: 5) 0008366559 BIOSIS NO.: 199294068400
MOLECULAR ANALYSIS OF CDNA AND THE TRANSCRIPT ENCODING THE DEPRESSANT INSECT SELECTIVE NEUROTOXIN OF THE SCORPION LEIURUS- QUINQUESTRIATUS -HEBRAEUS
1992

43/6/21 (Item 21 from file: 5) 0012310167 BIOSIS NO.: 200000028480
Mortality and feeding of mid-stadium larvae of Helicoverpa zea and Heliothis virescens fed a wild strain or a recombinant strain of Baculovirus heliothis expressing an insect-specific toxin of the scorpion Leiurus quinquestriatus hebraeus 1999

43/6/22 (Item 22 from file: 155) 09709895 PMID: 1801321
Nucleotide sequence and structure analysis of a cDNA encoding an alpha insect toxin from the scorpion Leiurus quinquestriatus hebraeus. 1991

43/6/23 (Item 23 from file: 5) 0008192856 BIOSIS NO.: 199293035747
NUCLEOTIDE SEQUENCE AND STRUCTURE ANALYSIS OF A CDNA ENCODING AN ALPHA INSECT TOXIN FROM THE SCORPION LEIURUS- QUINQUESTRIATUS –HEBRAEUS 1991

43/6/24 (Item 24 from file: 155) 14817292 PMID: 12787033
An 'Old World' scorpion beta- toxin that recognizes both insect and mammalian sodium channels. Jun 2003

43/6/25 (Item 25 from file: 5) 0013196447 BIOSIS NO.: 200100368286
Persistence and distribution of wild-type and recombinant nucleopolyhedroviruses in soil 2001

43/6/26 (Item 26 from file: 5) 0013009537 BIOSIS NO.: 200100181376
Recombinant baculovirus insecticides 2000

43/6/27 (Item 27 from file: 357) 0108634 DBR Accession No.: 90-11325
Recombinant DNA coding for insecticide toxin - including new scorpion venom toxin or spider venom toxin , and transgenic plant containing such DNA 1990

43/6/28 (Item 28 from file: 357) 0148040 DBR Accession No.: 93-06092
Rapid isolation of full length cDNA clones by 'inverse PCR': purification of a scorpion cDNA family encoding alpha-neurotoxins - cDNA clone isolation by the inverse polymerase chain reaction 1993

43/6/29 (Item 29 from file: 5) 0012648094 BIOSIS NO.: 200000366407
Scorpion neurotoxins: Structure/function relationships and application in agriculture 2000

43/6/30 (Item 30 from file: 5) 0014419169 BIOSIS NO.: 200300377888
Scorpion toxins 2003

43/6/31 (Item 31 from file: 5) 0012786805 BIOSIS NO.: 200000505118
Yields of occlusion bodies from Heliothis virescens (Lepidoptera: Noctuidae) and Helicoverpa (Heliothis) zea (Lepidoptera: Noctuidae) larvae fed wild or recombinant strains of baculoviruses 2000

43/6/32 (Item 32 from file: 155) 14611132 PMID: 12467668
Three polymorphic genes encoding a depressant toxin from the Egyptian scorpion Leiurus quinquestriatus quinquestriatus .Jan 2003

43/6/33 (Item 33 from file: 5) 0014146392 BIOSIS NO.: 200300105111
Three polymorphic genes encoding a depressant toxin from the Egyptian scorpion Leiurus quinquestriatus quinquestriatus . 2003

48/6/1 (Item 1 from file: 5) 0014419169 BIOSIS NO.: 200300377888
Scorpion toxins 2003

48/6/2 (Item 1 from file: 357) 0264969 DBR Accession No.: 2001-04723
New polynucleotides encoding scorpion venom potassium channel-agonist proteins for producing e.g. of insect-tolerant transgenic plants for controlling insect pest damage and parasitic worm infections - scorpion venom potassium channel-agonist protein genes useful for constructing transgenic plant with insect resistance 2000

48/6/3 (Item 2 from file: 357) 0264374 DBR Accession No.: 2001-04128
New isolated polynucleotide encoding a scorpion toxin for treating epilepsy, degenerative disorders such as Huntington's disease, and neuronal death following stroke, and for creating plants that are insect tolerant - transgenic plant construction with insect resistance and gene therapy 2000

48/7/2 (Item 1 from file: 357) DIALOG(R)File 357:Derwent Biotech Res. (c) 2005 Thomson Derwent & ISI. All rts. reserv.
0264969 DBR Accession No.: 2001-04723 PATENT
New polynucleotides encoding scorpion venom potassium channel-agonist proteins for producing e.g. of insect-tolerant transgenic plants for controlling insect pest damage and parasitic worm infections - scorpion venom potassium channel-agonist protein genes useful for constructing transgenic plant with insect resistance
AUTHOR: Herrmann R; Lee J M ; Wong J F
CORPORATE SOURCE: Wilmington, DE, USA.
PATENT ASSIGNEE: Du-Pont 2000
PATENT NUMBER: WO 200078958 PATENT DATE: 20001228 WPI ACCESSION NO.: 2001-071394 (2008)
PRIORITY APPLIC. NO.: US 140227 APPLIC. DATE: 19990622
NATIONAL APPLIC. NO.: WO 2000US17049 APPLIC. DATE: 20000621 LANGUAGE: English
ABSTRACT: An isolated polynucleotide (I) (e.g. DNA or RNA) is claimed. (I) contains a nucleotide sequence selected from a nucleotide sequence (III) of at least 81 nucleotides selected from 10 sequence of 171-213 (N1)-(N10), a nucleotide sequence (III) encoding a protein of at least 27 amino acids selected from 10 sequences of 56-70 amino acids (P1)-(P10), or a complement of (III) or (IV). Also claimed are: a chimeric gene or vector (II); a host cell (yeast, bacterium, plant) containing (I) or (II); a virus containing (I); a protein of at least 27 amino acids; a method of obtaining a nucleic acid fragment encoding a K-channel agonist; a recombinant baculo virus expression vector; and a method for testing the activity of a K-channel agonist against insects. (I) is useful for creating transgenic plants which express K-channel modifiers, useful as a means for controlling insect pest by producing insect tolerance. In the prevention or treatment of insect pest damage and parasitic worm infections in animals and humans, the invention may also find use in creating specific new pesticides and anthelmintic drugs that are also non-toxic to humans, pets and livestock. (50pp)